

REMARKS

I. Status of Claims

Claims 1-13, 19 and 23-26 were previously withdrawn from further consideration as being drawn to a non-elected and/or species. Election was made to continue prosecution of claims 14-18 and 20-22. Therefore, as indicated herein, claims 1-13, 19 and 23-26 have been cancelled. The Applicants have amended claims 14, 16, 17, 20 and added newly submitted claims 26 and 27 as indicated herein. Claims 15, 18, 21, and 22 remain unamended.

II. Rejections Under 35 U.S.C. §112

In the above-captioned Office Action, the Examiner rejected claims 14-18 and 20-22 under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The Examiner argued that it is not clear how the structure of FIGS. 1 and 2 would be made especially when the outer layer is diamond. The Examiner stated that presumably outer layer 12 is a cone structure made with a conical hole in its middle where the whole structure is very small. The Examiner indicated that how such a device could be manufactured is not clear.

The Applicants respectfully disagree with this assessment. Applicants' claims 14-18 and 20-22 are not directed toward a method of manufacture. Thus, it is irrelevant how such a device could be manufactured. The patent application itself is not directed toward a manufacturing method. Instead, the invention is directed toward an apparatus. Additionally, only one claim (i.e., claim 18) is directed toward the use of diamond. Thus, it is improper to base a 35 U.S.C. 112 rejection to claims 14-17 and 20-22 based on a feature that is only present in one claim (i.e., claim 18).

For the foregoing reasons, the Applicants believe that the rejection to claims 14-18 and 20-22 under 35 U.S.C. 112 has been traversed. Applicants therefore respectfully request withdrawal of the rejection to claims 14-18 and 20-22 under 35 U.S.C. 112.

III. Rejections Under 35 U.S.C. §102(b)

In the above-captioned Office Action, the Examiner rejected claims 14-18 and 20-22 under 35 U.S.C. §102(b) as being anticipated by Zimmer et al (5,763,879) or Ference et al. (U.S. Patent No. 5,926,029). The Examiner argued that both Zimmer et al and Ference et al have an outer layer of diamond, which can penetrate a semiconductor layer wherein the outer layer surrounds an inside needle. In support of this argument, the Examiner cited col. 2, line 66+ Zimmer et al and col. 8, line 17+ of Ference et al.

The Applicants respectfully disagree with this assessment. Applicants' amended claim 14 discloses an apparatus which includes an outer layer surrounding an inside needle, which can be drawn back in preparation for subsequent probing operations thereof by said inside needle. When the prober (i.e., inside layer or inside needle) is drawn back, the piercer can be simultaneously utilized to pierce or penetrate the layer below. Col. 8, line 17 of Ference does not indicate the use of an inside needle which can be drawn back in preparation for subsequent probing operations, while the piercer simultaneously pierces the layer below.

Applicants' Piercer 11 generally comprises a dielectric sheath as indicated in Applicants' amended claim 17, which can be comprise hard dielectric material mounted as an outer layer 12 that surrounds an inner needle (i.e., the prober 14). Prober 14 comprises a conductive metal prober (i.e., see Applicants' amended claims 16 and 20), which is formed from an inner layer or inner needle, as illustrated in FIG. 1. The hard dielectric sheath (i.e., piercer 11) thus acts as piercer. When metal prober 14 is drawn back, the outer dielectric sheath (i.e.,

piercer 11) can easily fabricate a cavity in the protecting SiO₂ film 17 on the test line pad 16 of a semiconductor wafer, as indicated in Applicants' disclosure.

Additionally, it is not clear that Ference et al teaches an interior layer in the shape of a "needle". Similarly, col. 2, lines 66+ of Zimmer et al does not teach either an interior layer in the shape of a needle which can be drawn back and then released for subsequent probing operations, while the outer layer (piercer) actually penetrates the layer below. In fact, col. 2, lines 66+ of Zimmer is directed toward a probe tip 11 having a substrate 13 and a diamond film coating 15, but does not indicate that the interior layer can be withdrawn in the manner taught by Applicants' invention. Similarly, col. 2, lines 66+ of Zimmer does not indicate that while the interior layer is withdrawn, the outer layer may pierce the area below. Additionally, neither Zimmer et al nor Ference et al teach, anticipate or disclose a combined "pen-shaped" piercer/prober apparatus, which is taught by Applicants' newly submitted claim 27.

Additionally, neither Zimmer et al nor Ference et al teach, anticipate or show that an inside needle and an outside layer, which form a concentric double layer structure prober. The Examiner has not explained how the col. 2, lines 66+ of Zimmer et al or col. 8, lines 17+ of Ference et al teach, anticipate or disclose an inside needle and an outside layer, which form a concentric double layer structure prober, as indicated in Applicants' claim 21, and which also, as indicated in Applicants' claims 22 and 27 can be withdrawn for combined piercing/probing operations.

One of the problems with both the Zimmer et al and Ference et al references is that neither permits probing and piercing operations to occur essentially simultaneously. As the probe (i.e., needle) is withdrawn (i.e., the probing operation is initiated at the stage where the needle is withdrawn), the layer below can be penetrated by the piercer. The prober is then released for testing and probing the lower layers. Additionally, neither Zimmer et al and/or Ference et al teach that the

outer layer comprises a sheath, and that further, the sheath is formed from a hard dielectric material to comprise a piercer.

Based on the foregoing, the Applicants' believe that the rejections to claims 14-18 and 20-22 under 35 U.S.C. §102(b) as being anticipated by Zimmer et al (5,763,879) or Ference et al. (U.S. Patent No. 5,926,029) should be withdrawn. The Applicants' believe that these rejections have now been traversed and request withdrawal thereof.

IV. Conclusion

Applicants have amended the claims to more particularly disclose the invention claimed thereof. It is believed that such amendments do not constitute new matter, but are rather clarifying in nature. Applicants have clarified the structural distinctions of the present invention by amending the claims. No new subject matter has been introduced as a result of this amendment. Additionally, it is believed that support for such amendments is provided within the specification, and that the specification adequately enables such amendments.

In view of the foregoing discussion, Applicants have responded to each and every rejection of the Official Action, and respectfully request that a timely Notice of Allowance be issued. Applicants respectfully submit that the foregoing discussion does not present new issues for consideration and that no new search is necessitated. Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejections under 35 U.S.C. §102 and §112, and further examination of the present application.

In view of the above remarks, allowance of all claims pending is respectfully requested. If a telephone conference would be of assistance in advancing the prosecution of this application, the Examiner is invited to call applicants' attorney at the below-indicated telephone number.

Respectfully submitted,

A handwritten signature in black ink, appearing to be 'Randy Tung', written over a horizontal line.

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